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TITLE

PINE BUTTERFLY EPIDEMIC

NEW MEADOWS, IDAHO

1922

Forest Insect Laboratory
Coeur d'Alene, Idaho

1925

SUBJECT—

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Pine Butterfly

Pine Butterfly Epidemic in Meadows, Idaho 1922

J.C.E. 1925

In May 1922 at the request of the Boise Payette Lumber Company the writer made an examination of a tract of yellow pine near McCall, Idaho. The foliage of these trees was badly faded and it was found that the trees were seriously infested by needle cast fungus which was identified by forest pathologists as Hypoderma deformans. Mr. Harry Schellworth, land agent of the Boise Payette Lumber Company stated that this area had been in this condition for the past 10 or 15 years, and that at some seasons it appeared to be a great deal worse than any others. Inasmuch as it had been present in the area for so long it is not regarded as being of a serious menance to the life of the trees. Many of the trees carried a large quantity of witches broom which forest pathologists states if often associated with this needle cast fungus.

During the summer of 1922 a severe epidemic of the pine butterfly (Neophasia menapia) appeared and during July and August many thousands of acres of high grade yellow pine were defoliated. This outbreak continued through the seasons of 1922 and 1923 but was brought to a complete control during the late season by natural enemies. The area infested with the needle fungus was but lightly attacked during the 1922 season but rather heavily defoliated in 1923.

During the summer of 1924 many of the trees of this area began to look very sickly and it was evident that a large per cent of the trees in this area were dying. Later in the summer some survey strips were run through this area and it was found that ± 5% of the stand had died during the past year or else would die during the coming winter. Early in the season of 1925 it was found that a rather large percent of the trees in the area

were dead or dying and a sale of these trees to a local lumbering company was made by the Boise Payette Lumber Company. By July between 15 and 20 per cent of the total volume of the stand on this area had been cut and it was evident that there were yet many trees to be salvaged. Though a large number of these dead and dying trees were examined in no instances could insects be considered as being responsible for their death. Most all of these trees showed the camera to be in sticky fermented condition. In some cases there was such an excess of moisture that at the base of the trees the bark appeared to be thoroughly saturated and there was a very strong smell of fermentation. Bees, wasps etc were to be bound in abundance all around the base of such trees.

Though in the other areas where the defoliation of the yellow pine by the pine butterfly had been even more severe the loss of timber was not nearly as heavy as in the region infested by the fungus. Also in the other regions a certain per cent of the trees which had died since the start of the pine butterfly epidemic were individuals which would have otherwise recovered by the defoliation except for the attacks of the western pine beetles. For the want of a better reason it is believed the weakening of the trees by the needle fungus prior to the defoliation by the pine butterfly was responsible for the very heavy destruction of timber in that area.

To check on this possibility a sample plot was established in this area for the purpose of determining if there was any difference in the rate of growth between the dead and dying trees and the heavy green ones. This plot of 50 trees was established so that there would be an equal number of green healthy trees, and dead, dying or recently salvaged one. An increment core, as well as the diameter was taken of each tree. The data

secured from these increment cores is given in the table attached to this report. From this table the following comparisons can be made:

	Average imp last ½ inch	Average imp last inch	Av.Width last 10 yrs.growth	Av.Growth per cent
Green, apparently healthy trees at time of examination July - 1925	15	37	48/100 inch	.0033
Cut, dead, or dying trees at time of examination July 1925	24	35	33/100 inch	.0034
Tree Measures	16	33	38/100	.0038

From the above comparisons it is very evident that the slowest growing trees suffered the most as a result of the pine butterfly defoliation. Furthermore as the remaining trees of the stand show very little evidence of witches broom it can be taken for the criterion as to the amount of needle cast fungus it is is believed that this fungus was responsible for the checking of the growth of these trees, however this point is very problematical and may have had very little to do with this condition.

6. From ~~Table~~ this table the following comparisons can be made.

	Average ring last ½ inch	Average ring last inch	Average width last 10 yrs growth	Average growth percent
Green, apparently healthy trees at time of examination July - 1925	16	24	55/100 inch	.005%
Cull, dead, or dying trees at time of examination — July 1925.	25	37	34/100 inch	.008%